

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
Advanced Television Systems)
and Their Impact Upon the)
Existing Television Broadcast)
Service)

MM Docket No. 87-268

To: The Commission

**REPLY TO PARTIAL OPPOSITION OF
PAXTON MEDIA GROUP, INC. TO
PETITION FOR CLARIFICATION AND PARTIAL
RECONSIDERATION OF THE SIXTH REPORT AND
ORDER SUBMITTED BY PULITZER BROADCASTING COMPANY**

On June 13, 1997, Pulitzer Broadcasting Company ("Pulitzer"), filed a Petition for Clarification and Partial Reconsideration of the Sixth Report and Order in the above-captioned proceeding.^{1/} Because the NTSC service of at least two Pulitzer stations (WLKY, Louisville, Kentucky, and WGAL, Lancaster, Pennsylvania) is at risk of serious degradation during the transition from interference from new DTV channel assignments, Pulitzer requested that, subject to two-year reviews, the Commission adopt temporary "caps" during the transition on the transmission power or antenna height of DTV stations that cause interference to NTSC stations. These temporary caps on transmission power or antenna height would

^{1/} Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service, MM Docket No. 87-268, FCC 97-115, 62 Fed. Reg. 26684, Sixth Report and Order (released April 21, 1997) ("Sixth Report and Order").

mitigate much of this DTV-to-NTSC interference during the DTV transition.

On July 18, 1997, Paxton Media Group ("Paxton"), the licensee of WPSD-TV, Paducah, Kentucky, filed a Partial Opposition which takes issue with the statement in Pulitzer's Reconsideration Petition that 30% of WLKY's existing NTSC coverage area, some 4,682 square kilometers of coverage, will be lost to harmful interference from new DTV stations.^{2/} Paxton contends that Pulitzer's Reconsideration Petition "vastly overstates the extent of the interference that WPSD-TV's digital transmissions will cause to WLKY and accordingly, requests that a power cap not be imposed on WPSD-TV.

Paxton's partial Opposition is premised on the assumption that Pulitzer's engineering consultant made a significant miscalculation of the interference that WPSD-TV will cause to WLKY. According to Paxton, Pulitzer's engineering consultant "inexplicably" predicts nearly twice as much interference to WLKY than predicted by WPSD-TV's consulting engineer." Partial Opposition at 2. Paxton points out that Pulitzer's "engineer did not explain the basis for his calculations, which we believe may be a result of an erroneous assumption of nondirectional rather than directional antennas." Id. at 3.

^{2/} According to the Engineering Statement of John F.X. Browne, P.E., submitted as Appendix B of the Pulitzer Petition, the interference to WLKY's NTSC signal is caused by the DTV channel assignments of WNDY (DTV Channel 32), Marion, IN; WPSD (DTV Channel 32), Paducah, KY; WKRC (DTV Channel 31, Cincinnati, OH; and WSTR (DTV Channel 33), Cincinnati, OH.

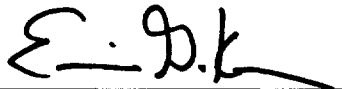
An explanation of the methodology used by Pulitzer's consulting engineer in calculating the extent of interference that will be caused to WLKY from the digital operation of WPSD-TV is set forth in the attached Engineering Statement of John F. X. Browne, P.E. The Engineering Statement points out that while the interference studies conducted by Pulitzer in May 1997 and Paxton in July 1997 were both based on software analyses provided by Telecommunications Analyses Services (TAS), differences in the extent of interference resulted from changes in the TAS software program which occurred after the Pulitzer study was conducted. Since the process of refining an interference prediction model is a work-in-progress, there is likely to be further change in the amount of interference predicted to be caused by the digital operation of WPSD-TV to the existing service area of WLKY-TV. The Engineering Statement concludes that it is very clear that there is a significant loss-of-service area involved (425 square kilometers now predicted by TAS or 978 square kilometers predicted by the earlier version of the TAS software). However, the precise extent of interference is subject to further refinement by the Commission of the methodologies used to describe and define predicted interference.

Paxton also argues that the relief requested in Pulitzer's Reconsideration Petition is contradicted by its filing of applications for DTV construction permits which will cause additional interference. There is no contradiction -- Pulitzer is concerned about the degradation of NTSC service from the new DTV channel assignments during the transition period. As

Pulitzer suggested in its Reconsideration Petition, temporary caps should be subject to the Commission's biennial reviews of DTV policies and rules. At the beginning of the transition, virtually no audience for DTV broadcasts will exist. Under these circumstances, the only meaningful result of DTV-to-NTSC interference would be the reduction of NTSC television service to the public. As the DTV audience grows, the Commission would be free to relax the caps to permit expanded DTV service where circumstances may justify.

Respectfully submitted,

PULITZER BROADCASTING COMPANY

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July 31, 1997

**ENGINEERING STATEMENT**

of

John F.X. Browne, P.E.

re

Pulitzer Broadcasting Company**WLKY-TV****Louisville, KY**

In May, 1997, I was commissioned by Pulitzer Broadcasting Company (Pulitzer), licensee of WLKY-TV, Louisville (KY), to evaluate the viability of the DTV allotment recently announced by the Commission and to assess the interference that might result to the existing WLKY-TV NTSC service from proposed DTV stations. I subsequently prepared an engineering statement reporting on my findings; that statement was incorporated in a Petition for Clarification and Partial Reconsideration of the Sixth Report & Order filed by Pulitzer.

On July 18, 1997, counsel for Paxson Media Group, Inc. (Paxson) filed a Partial Opposition to the Pulitzer filing. Paxson is the licensee of WPSD-TV, Paducah (KY), whose DTV allotment on Channel 32 is co-channel with Pulitzer's NTSC WLKY-TV.

The Paxson filing was accompanied by the Engineering Statement of Jules Cohen, P.E., and the conclusions of that statement formed the basis for a significant part of the Paxson Opposition. Paxson's engineer computed the interference to WLKY-TV which would be caused by Paxson's DTV allotment; his analysis resulted in predicted interference levels lower than that reported in my Engineering Statement by a factor of two (approximately).

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Methodology

When the Commission released its Sixth Report & Order there was a considerable lack of understanding of the methodologies used in the preparation of the allotment table and with regard to the procedures to be used in computing interference between DTV and NTSC stations and between DTV stations. The Commission simultaneously announced the future availability of OET-69, a bulletin intended to describe and define interference prediction methodologies. Since this bulletin was not available at the time my statement was prepared, it was necessary to use alternative methodologies.

The U.S. Department of Commerce, through NTIA, provides a service called Telecommunications Analyses Services (TAS) which makes available a variety of on-line computational services to its customers. This firm has been an NTIA/TAS subscriber since 1993 and has made extensive use of its services. Following the release of the Sixth Report & Order, NTIA mounted a new service (actually a revision of an earlier software offering available on the system) for "HDTV" analyses. This is the same service used by Paxson's engineer and this firm to make their respective analyses in the instant matter. The principal difference appears to be the timing of when these analyses were made; my analysis for Pulitzer was accomplished on May 17, 1997, while Mr. Cohen's was done at a later time, probably sometime during the week preceding the July 18 filing deadline for replies to petitions, i.e., these studies were performed approximately two months apart. [In an informal meeting in early May with Commission staff (Mass Media and OET) we were advised that the NTIA/TAS software appeared to be acceptable for the Commission's purposes until such time as other implementations of the Commission's software became available.]

Attached hereto as Exhibit 1 is a copy of the actual study run by this firm by NTIA/TAS on May 17, 1997. It will be noted that the calculated interference listed therein created by WPSD-DT is in fact the value reported in my engineering statement.

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On July 24, 1997, after learning of the discrepancy between the values reported by Mr. Cohen and those reported to us two months earlier by TAS, I requested a new study from TAS (of the same DTV-to-NTSC interference to WLKY-TV) and the new TAS study reported values that are identical with those obtained from TAS by Mr. Cohen, i.e., interference from WPSD-DT is predicted to prevent reception of WLKY-TV in 425 sq. km of its present interference-free NTSC service area.

The consulting engineers in the industry still must rely on services such as TAS to make these interference analyses until they can develop and implement their own software which produces results acceptable to the Commission. However, there remain a few questions regarding the application of the prediction methodologies not the least of which include:

- The use by the Commission of a directional antenna pattern for each DTV allotment [which, for example, will result in the prediction of less interference than would be created by a DTV facility using an omni-directional antenna at the power level allotted in the Commission's table; the additional interference caused by a DTV facility operating omni-directionally (as is its NTSC facility) can be significant].
- The cumulative effects caused by multiple interference sources.
- The definition of interference to NTSC service within the Grade B contour based on determinations of whether a Grade B signal level exists (as computed by Longley-Rice) and whether there is any population detected in the incremental (1 km square) area being analyzed.
- Issues regarding the Commission's utilization of the Longley-Rice model with respect to application of confidence factors and some inherent limitations of the Longley-Rice model.
- The Commission's, perhaps, improper treatment of "error codes" generated by the Longley-Rice model in which analyses of cells (elemental areas being studied for presence of service and interference) producing "out-of-range" error messages are assumed to have interference-free service.
- The inclusion of population statistics as part of service and interference determinations.

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Reconciliation of Differences

On July 25, 1997, I spoke with Robert DeBoldt of NTIA/TAS. Mr. DeBoldt wrote most of the software for the TAS "HDTV" program and is the principal administrator for technical services at TAS. The purpose of my call was to explore the possible reasons for the differences in computed interference between the May and the July versions of the analysis. Mr. DeBoldt reported that during the May period he was making "adjustments" to the software to have his results more closely match those produced by the Commission's software; one of the principal concerns was that the NTIA software seemed to be predicting more interference than the Commission's software. This is not to say that Mr. DeBoldt agrees with the Commission's approach; in fact, there are differences of opinion regarding interference prediction methodologies and he (and I) believe that the Commission's software under-predicts interference, in part, because of the improper treatment of the Longley-Rice range error codes discussed above. Also, Mr. DeBoldt pointed out that there are other differences between the FCC and NTIA programs regarding the calculation of terrain effects [the FCC sampling interval for "stepping-out" along a radial is 1 km while NTIA uses 200 meters (which yields more accurate determinations of diffraction effects)] and the radials used for terrain analyses by NTIA are not the same as those used by the Commission. Counsel for Paxson may wish to review the filing it prepared and submitted to the Commission on behalf of MSTV (Petition for Clarification and Partial Reconsideration of the Fifth and Sixth Reports and Orders) wherein it argues that interference to NTSC stations will be greater than that predicted by the Commission (a conclusion with which I and Pulitzer concur).

Conclusion

It should be clear from this discussion that the process of refining an interference prediction model is a work-in-progress and there are likely to be further changes in the amount of interference predicted to be caused by WPSD-DT to the existing service area of WLKY-TV. It is also very clear that there is a significant loss-of-service area involved; time will tell whether the actual interference is closer

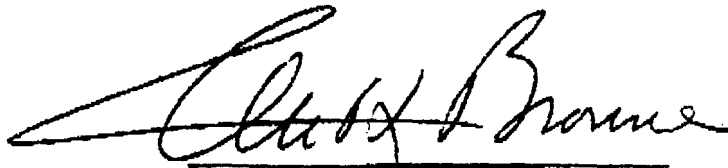
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to the 425 sq. km now predicted by the service provider for both parties (in an attempt to "match" the FCC results) or the 978 sq. km predicted by its earlier version of the software. I believe the latter will be the case.

Certification

This statement with associated exhibits was prepared by me or under my direction. All assertions contained in the statement are true of my own personal knowledge except where otherwise indicated and these latter assertions are believed to be true.



John F.X. Browne, P.E.
July 25, 1997

07/31/1997 14:59 8106426027
May 17, 11:27 by: , , ,

BROWNE ASSOCIATES

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EXHIBIT 1

TA Services

Telephone: (303) 497-5301 - Fax: (303) 497-3602

TruFax Cover Sheet

To:	John Fleming
From:	TA Services
Subject:	NTSC/EDTV Results

WLKY

INTERFERENCE BY DTV

Message Segment (/taservice/restart/RS274May1797B.desc):

NTSC/DTV Interference study /taservice/restart/RS274May1797

.desc

Desired Station Name: WLKY Station Type: NTSC
City: LOUISVILLE State: KY Channel: 32

Undesired Station 1 Name: DWZZZTV Station Type: HDTV
City: BLOOMINGTO State: IL Channel: 28 km:382.4 mi:237.6

ear:312.5

Undesired Station 2 Name: DWSIUTV Station Type: HDTV
City: CARBONDALE State: IL Channel: 40 km:299.1 mi:185.9

ear:265.4

Undesired Station 3 Name: DWSILTV Station Type: HDTV
City: HARRISBURG State: IL Channel: 34 km:279.1 mi:173.4

ear:253.4

Undesired Station 4 Name: DWILLTV Station Type: HDTV
City: URBANA State: IL Channel: 33 km:306.6 mi: 40.7

ear:308.1

Undesired Station 5 Name: DWTWV Station Type: HDTV
City: EVANSVILLE State: IN Channel: 28 km:138.9 mi: 37.6

ear:254.4

Undesired Station 6 Name: DWPTA Station Type: HDTV
City: FORT WAYNE State: IN Channel: 24 km:308.8 mi:191.9

ear: 10.2

Undesired Station 7 Name: DWFVA Station Type: HDTV
City: FORT WAYNE State: IN Channel: 40 km:308.8 mi:191.9

ear: 10.0

Undesired Station 8 Name: DWFFTTV Station Type: HDTV
City: FORT WAYNE State: IN Channel: 36 km:309.3 mi:192.2

ear: 10.0

Undesired Station 9 Name: DWJYS Station Type: HDTV
City: HAMMOND State: IN Channel: 36 km:390.9 mi:242.9

ear:335.4

Undesired Station 10 Name: DWRTV Station Type: HDTV
City: INDIANAPOL State: IN Channel: 25 km:173.0 mi:107.5

ear:349.6

Undesired Station 11 Name: DWTHR Station Type: HDTV
City: INDIANAPOL State: IN Channel: 46 km:175.9 mi:109.3

ear:350.3

Undesired Station 12 Name: DWNDYTV Station Type: HDTV
City: MARION State: IN Channel: 32 km:198.0 mi:123.0

ear:357.5

Undesired Station 13 Name: DWKOI Station Type: HDTV
City: RICHMOND State: IN Channel: 30 km:163.9 mi:101.8

ear: 38.8

Undesired Station 14 Name: DWSBTTV Station Type: HDTV
City: SOUTH BEND State: IN Channel: 30 km:362.4 mi:225.2

ear:355.0

Undesired Station 15 Name: DWNIT Station Type: HDTV
City: SOUTH BEND State: IN Channel: 35 km:362.2 mi:225.1

ear:355.2
Undesired Station 16 Name: DWTWO Station Type: HDTV
City: TERRE HAUT State: IN Channel: 36 km:166.2 mi:103.3

ear:306.2
Undesired Station 17 Name: DWTHITV Station Type: HDTV
City: TERRE HAUT State: IN Channel: 24 km:165.8 mi:103.0

ear:306.3
Undesired Station 18 Name: DWBAKTV Station Type: HDTV
City: TERRE HAUT State: IN Channel: 39 km:165.9 mi:103.1

ear:305.8
Undesired Station 19 Name: DWBKO Station Type: HDTV
City: BOWLING GR State: KY Channel: 33 km:154.4 mi: 95.9

ear:200.2
Undesired Station 20 Name: DWCVNTV Station Type: HDTV
City: COVINGTON State: KY Channel: 24 km:136.6 mi: 84.9

ear: 57.0
Undesired Station 21 Name: DWTVQTV Station Type: HDTV
City: LEXINGTON State: KY Channel: 40 km:131.1 mi: 81.5

ear:271.4
Undesired Station 22 Name: DWAVE Station Type: HDTV
City: LOUISVILLE State: KY Channel: 47 km: 36.9 mi: 23.0

ear: 74.7
Undesired Station 23 Name: DWKMU Station Type: HDTV
City: MURRAY State: KY Channel: 36 km:302.4 mi:187.9

ear:232.8
Undesired Station 24 Name: DWXIXTV Station Type: HDTV
City: NEWPORT State: KY Channel: 29 km:139.4 mi: 86.6

ear:319.9
Undesired Station 25 Name: DWKOH Station Type: HDTV
City: OWENSBORO State: KY Channel: 29 km:142.8 mi: 88.7

ear:246.7
Undesired Station 26 Name: DWPSDTV Station Type: HDTV
City: PADUCAH State: KY Channel: 32 km:305.9 mi:190.1

ear:245.6
Undesired Station 27 Name: DWKPITV Station Type: HDTV
City: PIKEVILLE State: KY Channel: 24 km:314.5 mi:195.4

ear:203.1
Undesired Station 28 Name: DKSDK Station Type: HDTV
City: ST. LOUIS State: MO Channel: 35 km:392.0 mi:243.6

ear:274.6
Undesired Station 29 Name: DKDNLTV Station Type: HDTV
City: ST. LOUIS State: MO Channel: 31 km:391.8 mi:243.5

ear:274.8
Undesired Station 30 Name: DWWHO Station Type: HDTV
City: CHILLICOTH State: OH Channel: 46 km:271.4 mi:354.9

ear:220.5
Undesired Station 31 Name: DWLWT Station Type: HDTV
City: CINCINNATI State: OH Channel: 35 km:141.3 mi:354.7

ear:220.4
Undesired Station 32 Name: DWKRCTV Station Type: HDTV

May 17, 11:27

by: , , ,

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City: CINCINNATI State: OH Channel: 31 km:142.2 mi: 88.4

ear: 53.9

Undesired Station 33 Name: DWCEI Station Type: HDTV
City: CINCINNATI State: OH Channel: 34 km:141.4 mi:252.7

ear:157.0

Undesired Station 34 Name: DWSTRTV Station Type: HDTV
City: CINCINNATI State: OH Channel: 33 km:146.4 mi: 91.0

ear: 50.5

Undesired Station 35 Name: DWTE Station Type: HDTV
City: COLUMBUS State: OH Channel: 36 km:319.9 mi:311.6

ear:193.6

Undesired Station 36 Name: DWRTTV Station Type: HDTV
City: DAYTON State: OH Channel: 39 km:203.1 mi:126.2

ear: 41.6

Undesired Station 37 Name: DWSFJTV Station Type: HDTV
City: NEWARK State: OH Channel: 24 km:343.3 mi:213.3

ear: 58.2

Undesired Station 38 Name: DWPTO Station Type: HDTV
City: OXFORD State: OH Channel: 28 km:158.1 mi: 98.2

ear: 36.6

Undesired Station 39 Name: DWHTV Station Type: HDTV
City: ZANESVILLE State: OH Channel: 40 km:374.2 mi:232.5

ear: 61.2

Undesired Station 40 Name: DWDCN Station Type: HDTV
City: NASHVILLE State: TN Channel: 46 km:272.8 mi:169.5

ear:199.2

Undesired Station 41 Name: DWTV Station Type: HDTV
City: CHATTANOOG State: TN Channel: 35 km:359.5 mi:223.4

ear:172.5

Undesired Station 42 Name: DWDEFTV Station Type: HDTV
City: CHATTANOOG State: TN Channel: 47 km:362.3 mi:225.1

ear:172.6

Undesired Station 43 Name: DWTCI Station Type: HDTV
City: CHATTANOOG State: TN Channel: 29 km:354.9 mi:220.5

ear:171.9

Undesired Station 44 Name: DWDSITV Station Type: HDTV
City: CHATTANOOG State: TN Channel: 40 km:354.7 mi:220.4

ear:171.8

Undesired Station 45 Name: DWKZX Station Type: HDTV
City: COOKEVILLE State: TN Channel: 36 km:252.7 mi:157.0

ear:170.0

Undesired Station 46 Name: DWVLTIV Station Type: HDTV
City: KNOXVILLE State: TN Channel: 30 km:311.6 mi:193.6

ear:146.7

Undesired Station 47 Name: DWBIRTV Station Type: HDTV
City: KNOXVILLE State: TN Channel: 31 km:311.7 mi:193.7

ear:146.9

Undesired Station 48 Name: DWTNZ Station Type: HDTV
City: KNOXVILLE State: TN Channel: 34 km:312.2 mi:194.0

ear:147.4

Undesired Station 49 Name: DWLJTTV Station Type: HDTV
 City: LEXINGTON State: TN Channel: 47 km:384.9 mi:239.1

ear:220.5

Undesired Station 50 Name: DWCYBTV Station Type: HDTV
 City: BRISTOL State: VA Channel: 28 km: 33.6 mi:243.6

ear:121.8

Undesired Station 51 Name: DWSBNTV Station Type: HDTV
 City: NORTON State: VA Channel: 32 km:326.5 mi:202.9

ear:119.1

Undesired Station 52 Name: DWKRPTV Station Type: HDTV
 City: CHARLESTON State: WV Channel: 39 km:353.5 mi:219.6

ear: 86.9

Undesired Station 53 Name: DWPBYTV Station Type: HDTV
 City: HUNTINGTON State: WV Channel: 34 km:316.6 mi:196.7

ear: 86.4

Stations that actually do contribute to interference.

Name	SA	NTSC Int	HDTV Int	
DWTVW -28	.00	sq km	24.77	sq km EVANSVILLE
DWNDYTV-32	.00	sq km	2923.87	sq km MARION
DWKOI -30	.00	sq km	3.06	sq km
DWTWO -36	.00	sq km	6.14	sq km
DWBKO -33	.00	sq km	24.95	sq km
DWCVNTV-24	.00	sq km	6.13	sq km
DWTVQTV-40	.00	sq km	3.10	sq km
DWAVE -47	.00	sq km	1281.75	sq km LOUISVILLE
DWXIXTV-29	.00	sq km	101.15	sq km
DWPSDTV-32	.00	sq km	978.04	sq km PADUCAH
DWLWT -35	.00	sq km	98.12	sq km
DWKRCTV-31	.00	sq km	442.05	sq km CINCINNATI
DWCET -34	.00	sq km	64.40	sq km
DWSTRTV-33	.00	sq km	337.48	sq km CINCI
DWSBNTV-32	.00	sq km	172.69	sq km SOUTH BEND

CERTIFICATE OF SERVICE

I, Anastasia C. Chung, a secretary in the law firm of Verner, Liipfert, Bernhard, McPherson and Hand, Chartered, do hereby certify that the foregoing "" was mailed first-class, postage prepaid, or was hand-delivered*, this 31st day of July, 1997, to the following:

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Anastasia C. Chung